

I claim,

1. A pump, comprising:

a vane assembly, the vane assembly being positioned within a housing;

a pressure ring, the pressure ring being positioned around the vane

assembly to float within the housing; and

a compensator, the compensator comprising a guide, a first end, a second end and a plurality of individual adjusting elements, the second end being in contact with the pressure ring and the plurality of adjusting elements being positioned adjacent the second end of the compensator in series to vary pressure created by the vane assembly against the pressure ring.

2. The pump according to claim 1, wherein the vane assembly delivers pressure up to and including 3,200 pounds per square inch.

3. The pump according to claim 1, wherein the compensator further comprises at least one pivot plate positioned between the first end and the plurality of adjusting elements.

4. The pump according to claim 1, wherein the compensator comprises at least one bearing plate positioned between the second end and the plurality of adjusting elements.

5. The pump according to claim 1, wherein the plurality of adjusting elements are each disc shaped, wherein each adjusting element has a center and an edge.

6. The pump according to claim 5, wherein each of the plurality of adjusting elements is sized and shaped to distribute the pressure from the center to the edge.

7. The pump according to claim 1, wherein each adjusting element has a convex side and a concave side.

8. The pump according to claim 7, wherein the plurality of adjusting elements are positioned in series such that the convex sides of adjacent adjusting members are in contact.

9. The pump according to claim 7, wherein the plurality of adjusting elements are positioned in series such that the concave sides of adjacent adjusting members are oppositely positioned.

10. The pump according to claim 1, wherein the plurality of individual adjusting elements are configured to reciprocate the guide between a first position and a second position against the pressure ring.

11. A high pressure rotational pump, comprising:

a vane assembly, the vane assembly being positioned within a housing;

a pressure ring, the pressure ring being positioned around the vane assembly to float within the housing;

a compensator, the compensator comprising a guide having a first end and a second end, the second end being in contact with the pressure ring; and

a plurality of adjusting elements, the plurality of adjusting elements being positioned around the guide between the first end and the second end in series, wherein the plurality of adjusting elements are positioned to reciprocate the guide between a first position and a second position in tandem with the pressure ring to vary pressure created by the vane assembly against the pressure ring.

12. The high pressure pump rotational according to claim 11, wherein the plurality of adjusting elements are sized and shaped to vary the pressure up to and including 3,200 pounds per square inch.

13. The high pressure pump rotational according to claim 11, wherein the compensator comprises at least one bearing plate positioned between the second end and the plurality of adjusting elements.

14. The high pressure pump rotational according to claim 11, wherein the compensator further comprises at least one pivot plate positioned between the first end and the plurality of adjusting elements.

15. The high pressure pump rotational according to claim 11, wherein the plurality of adjusting elements are disc shaped to distribute the pressure in a continuous arc pattern.

16. The high pressure pump rotational according to claim 11, wherein each adjusting element has a convex side and a concave side.

17. The high pressure pump rotational according to claim 16, wherein the plurality of adjusting elements are positioned in series such that the convex sides of adjacent adjusting members are in contact.

18. The high pressure pump rotational according to claim 16, wherein the plurality of adjusting elements are positioned in series such that the concave sides of adjacent adjusting elements are oppositely positioned.

19. A method of varying pressure, comprising the steps:  
rotating a vane assembly within a pump housing;  
applying up to 3,200 pounds per square inch pressure from the vane assembly against a pressure ring;  
varying the pressure by biasing a plurality of adjusting elements to reciprocate a guide against the pressure ring.

20. The method of varying pressure according to claim 19, further comprising the step of reciprocating the guide between a first position and a second position in tandem with the pressure ring.

21. The method of varying pressure according to claim 20, further comprising the step of aligning the plurality of adjusting elements in series wherein convex sides of adjacent adjusting elements are in contact.

22. The method of varying pressure according to claim 19, further comprising the step of aligning the plurality of adjusting elements in series wherein concave sides of adjacent adjusting elements are oppositely positioned.